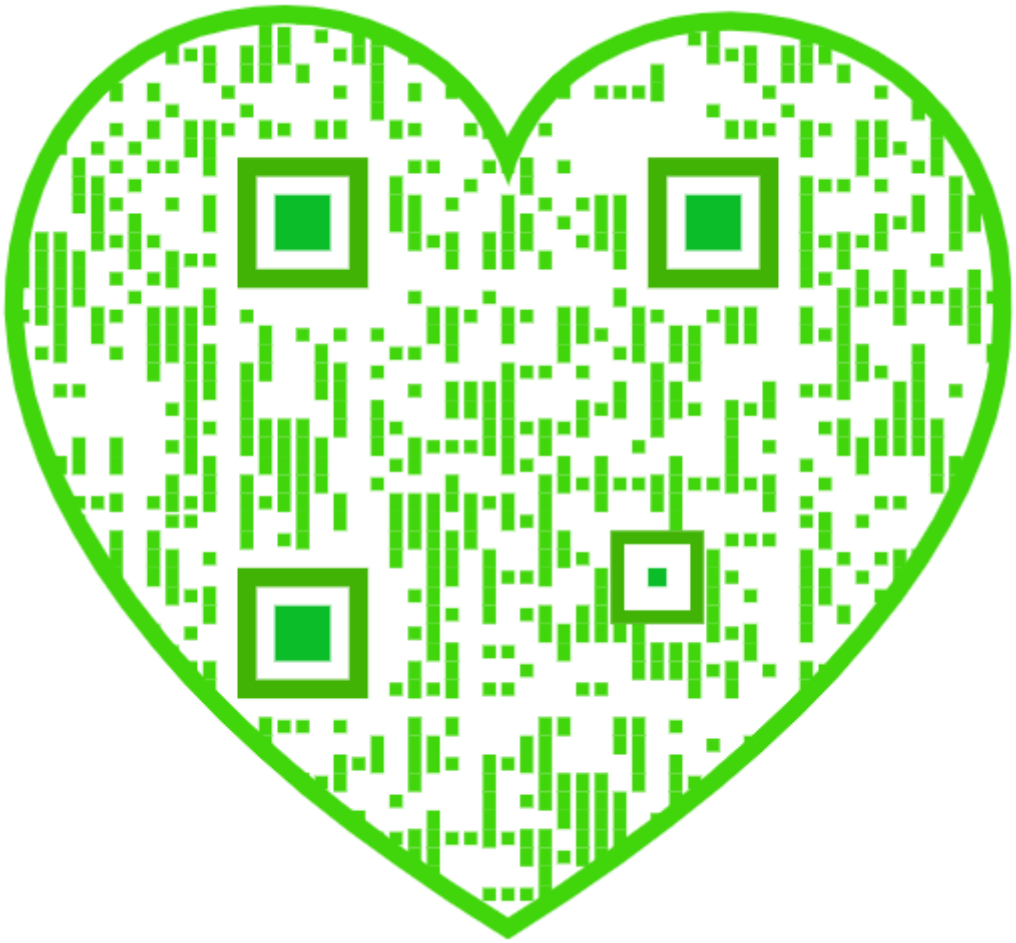
Master in Artificial Intelligence

Monitoring and Maintenance III



Purpose

The purpose of the section is to help you learn how to monitor and maintain the deployed models to become a Successful Artificial Intelligence (AI) Engineer

At the end of this lecture, you will learn the following

Model Drift Detection

Model Drift Detection

Compare and Detect Model Drift

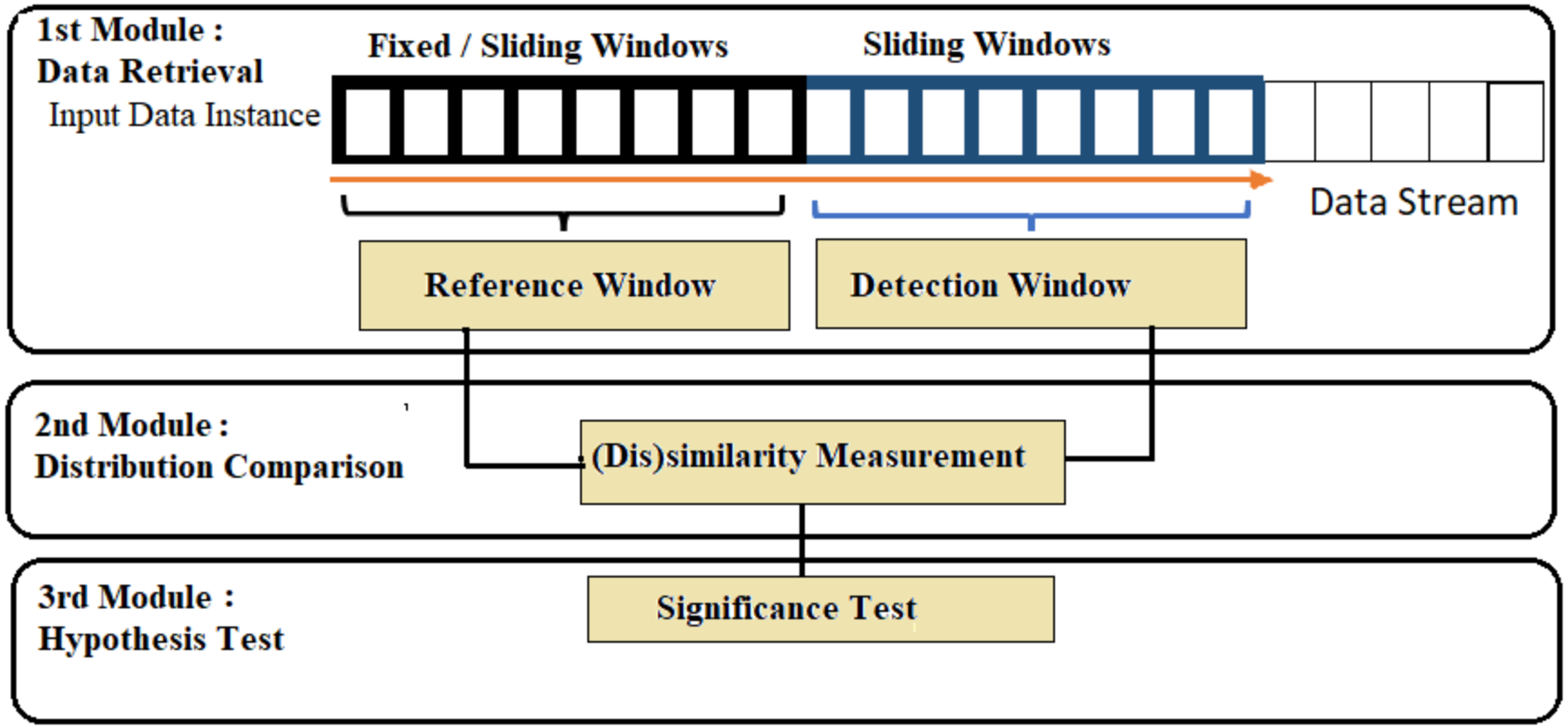
- Concept drift detection
- Anomaly detection
- Ensemble monitoring

How to use techniques such as concept drift detection, anomaly detection, or ensemble monitoring to identify model drift

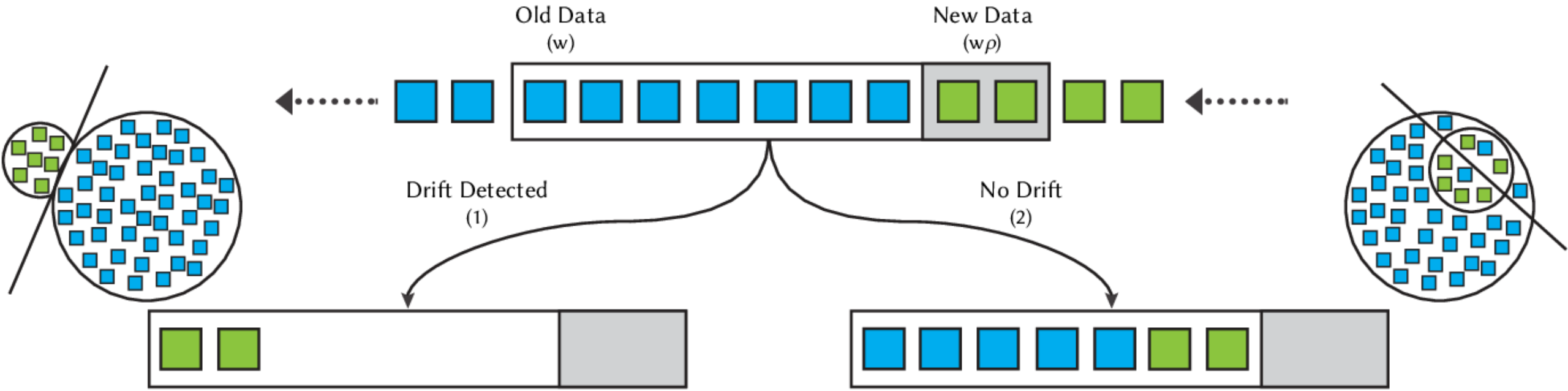
Compare and Detect Model Drift

- Concept drift detection
- Anomaly detection
- Ensemble monitoring

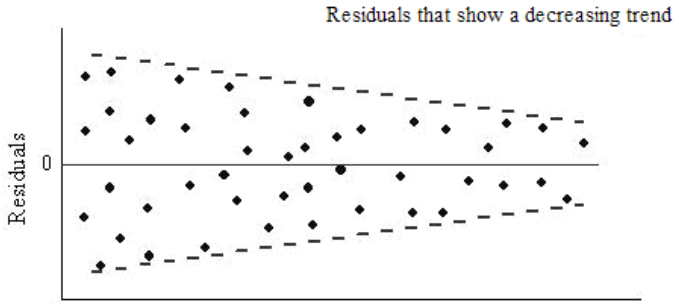
Concept Drift Detection- Window-based Methods

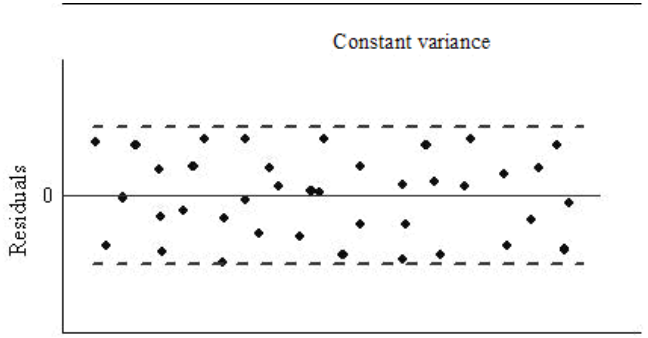


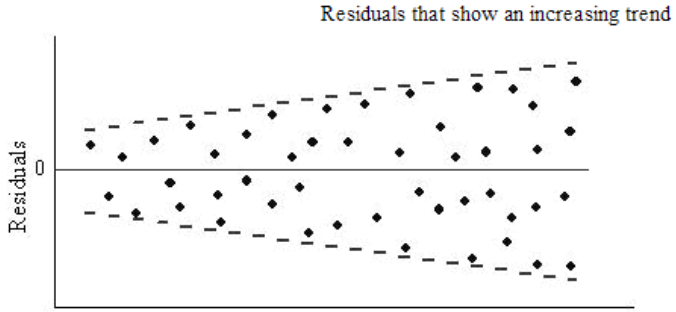
Concept Drift Detection- Classifier Drift Detection



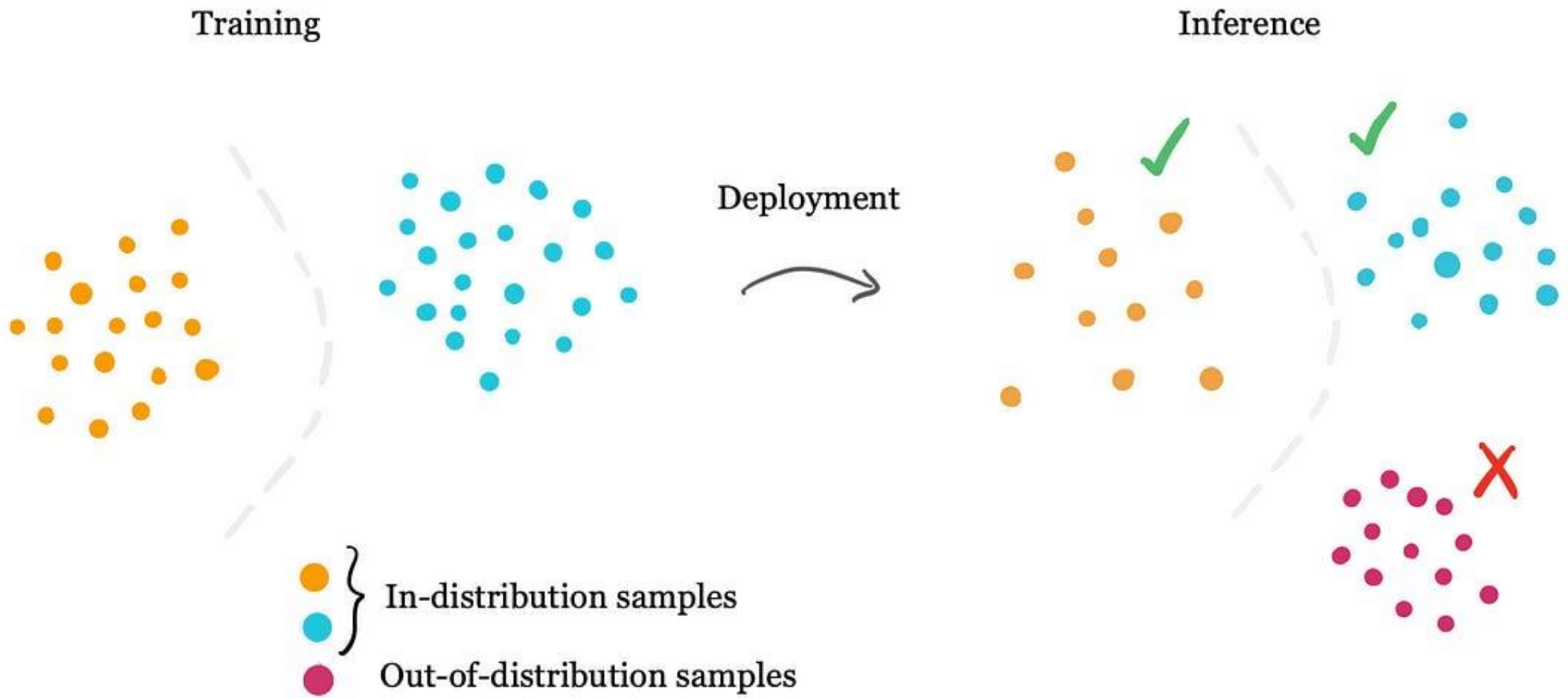
Anomaly Detection- Residual Analysis



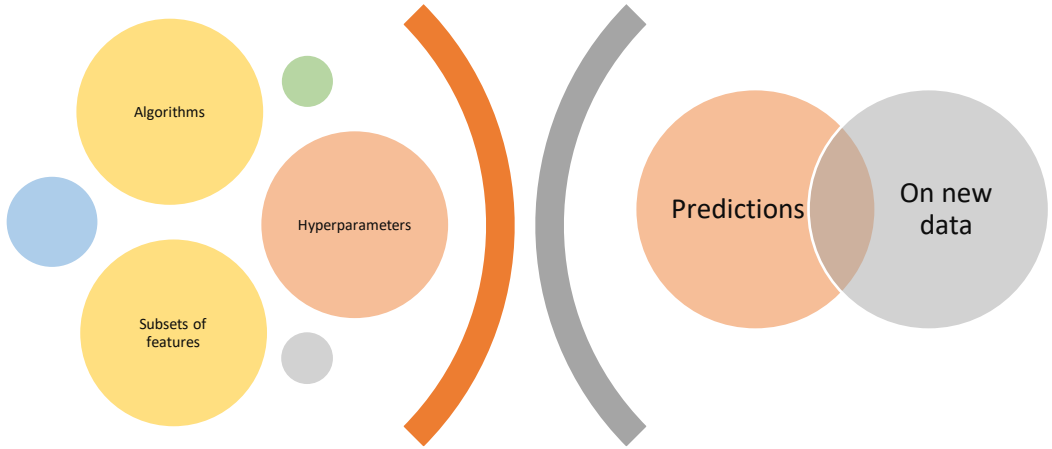




Anomaly Detection- Out-of-Distribution Detection

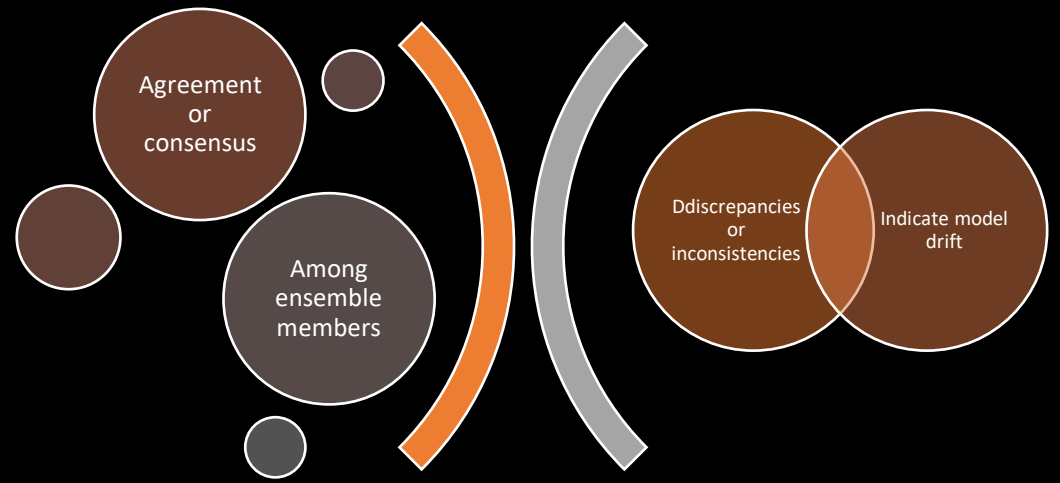


Ensemble Monitoring- Model Consistency



Train an ensemble of models using different

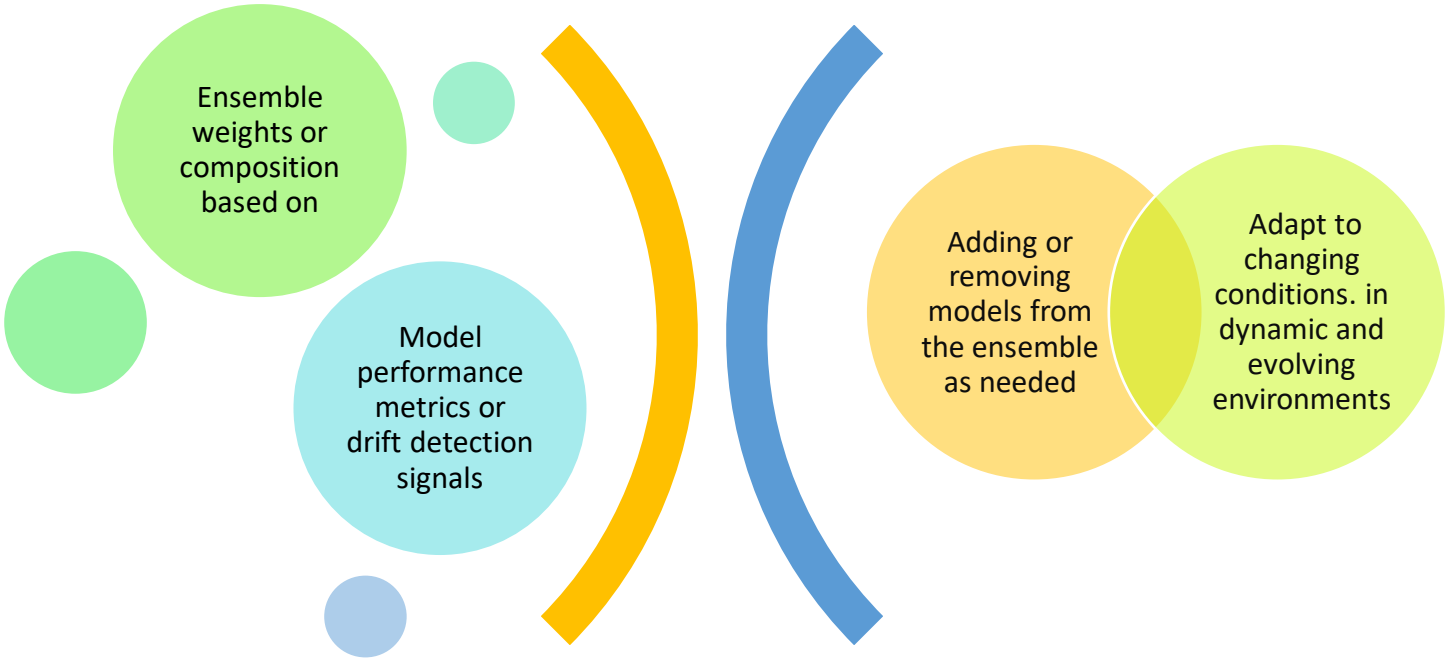
Monitor



Measure

Detect

Ensemble Monitoring- Dynamic Ensemble Adjustment



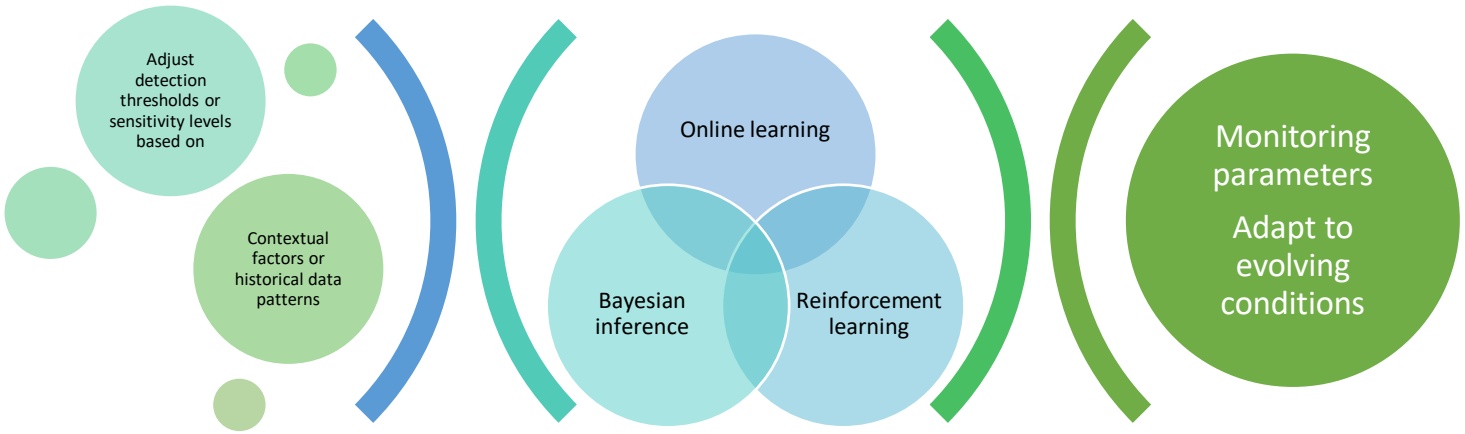
Dynamically adjust

Incorporate mechanisms for

Drift Detection Metrics

- Define drift detection metrics or statistics
  - Model predictions
  - Residuals
  - Other relevant indicators.
- Monitor metrics
  - Prediction accuracy
  - Error rates
  - Calibration
  - Confidence scores
- Detect
  - Significant deviations
  - Expected values

Adaptive Monitoring Strategies

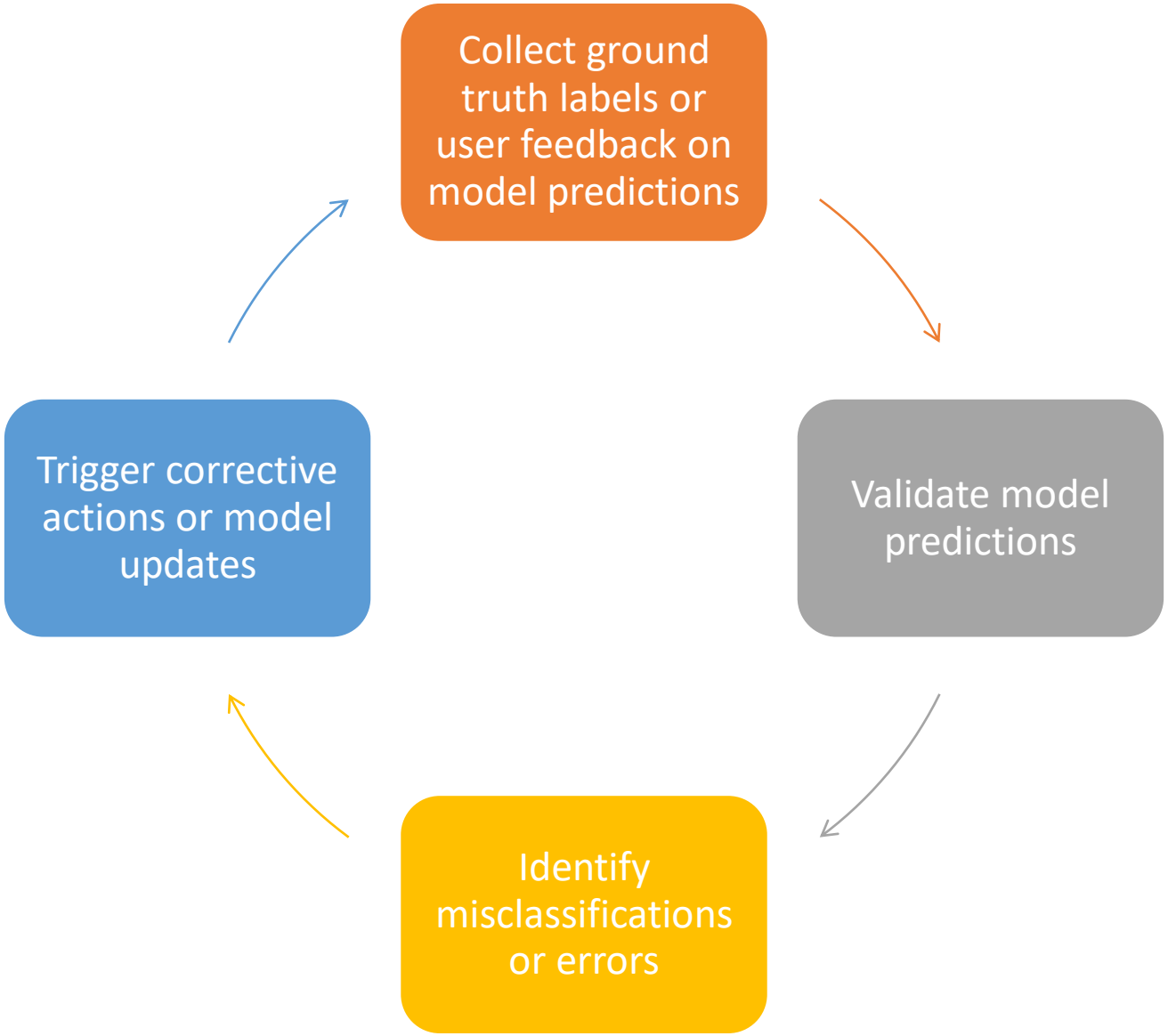


Implement adaptive monitoring strategies that

Use techniques such as

Dynamically update

Feedback Loops

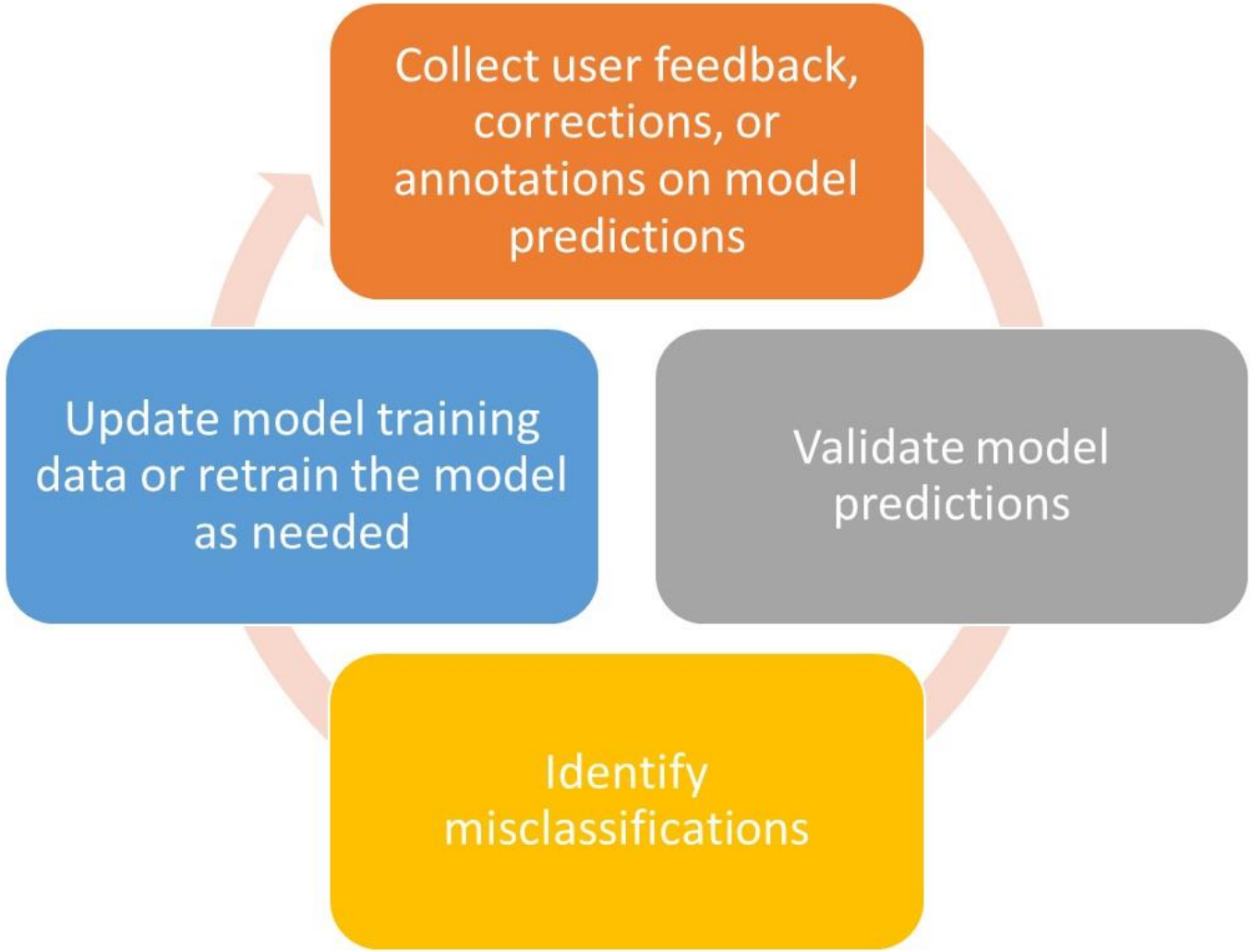


Compare and Detect Model Drift

- Concept drift detection
- Anomaly detection
- Ensemble monitoring

What is next?

How to monitor and maintain the deployed models



Master in Artificial Intelligence

Monitoring and Maintenance III